Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C.

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In the matter of DA 10-556)
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COMMENT

The STATE OF COLORADO is an owner of infrastructure in the Colorado statewide digital trunked radio system (DTRS), which is a Project 25 standards-based narrowband voice communications system with four radio frequency subsystems (RFSS) connecting approximately 200 individual RF sites to service approximately 54,500 individual radio units throughout Colorado. This system supports operable and interoperable communications for most public safety first responders in Colorado.

The following are comments from the STATE OF COLORADO in regards to select questions from Public Notice DA 10-556:

Question: ââ?¬Å?What are the factors that affect the current state of competition in the provision of public safety communications equipment?

Comment: Based on experience gained by the STATE OF COLORADO in this regard, the primary factor that affects the current state of competition in the provision of public safety communications equipment is the operability of the equipment while it is using the system. The Project 25 common air interface (CAI) standard has gone a long way to allow for interoperable voice services on trunked radio networks, however, the standard lacks two features which are commonly deployed on public safety trunked radio networks: trunked console patch and trunked console mult-select/simul-select. As a result, these features must be reverse-engineered by the manufacturers that are providing trunked mobile and portable radio equipment in order for this equipment to work correctly with the infrastructure. Additionally, the implementation of non-Project 25 standard voice capabilities is also a factor. Manufacturers are selling proprietary voice capabilities which are neither Project 25 standard encrypted (AES or DES) or Project 25 standard unencrypted schemes at a nominal cost, or simply giving this feature away at no cost. When agencies implement such voice capabilities into their radio fleet on their main communications talk groups, this removes the ability for that agency to purchase any other manufacturerââ?¬â?¢s radio with the same features without either reprogramming all

existing radios to operate in the unencrypted mode, or requiring the purchase of Project 25 standard (AES or DES) encryption equipment for all of their radios. Another barrier is the very high cost involved for manufacturers, particularly the smaller manufacturers, to review Project 25 standards documents. The newest Project 25 standards documents should be available to all equipment manufacturers and public sector employees at no cost. Otherwise, several non-Project 25 standards features of the radio have significant impact on the competition of radio equipment, including: multi-site roaming quality, talk group scanning capabilities, radio form factor/ruggedness and the flexibility of the radio to allow trunked talk groups and conventional channels to be arranged in the radio per the userââ?¬â?¢s requirements. It has been our experience that these are the features outside of the Project 25 standards today which can cause the actual choices of radios which can be purchased to be fewer in number.

Question: Are there any additional barriers to additional manufacturers supplying network equipment to the public safety community for narrowband communications?

Comment: If the definition of ââ?¬Ë?network equipmentââ?¬â?¢ means infrastructure equipment to support the system which is not a portable or mobile radio used by a first responder, the barriers to additional manufacturers supplying network equipment to the public safety community for narrowband communications are many ââ?¬â?? and significant. The cost involved for manufacturers, particularly the smaller manufacturers, to review Project 25 standards documents is very high. The newest Project 25 standards documents should be available to all equipment manufacturers and public sector employees at no cost. The Project 25 standards only define certain interfaces, and none of these interfaces allow for the network equipment from several manufacturers to co-exist at an RF site or in the RFSS. Therefore, a sole-source of all site and RFSS ââ?¬Ë?masterââ?¬â?¢ site equipment is the only option. Repeaters from varying manufacturers cannot co-exist at a single trunked RF site. Routers, switches, controllers or network management equipment from varying manufacturers cannot co-exist at a single RFSS ââ?¬Ë?masterââ?¬â?¢ site. The standards do allow for two RFSS ââ?¬Ë?masterââ?¬â?¢ sites to connect together, but the functionality of roaming and network management between the two RFSS and connected RF sites is not anywhere near what exists in a sole sourced solution.

Question: How would additional competition in the provision of public safety communications equipment improve narrowband or broadband interoperability?

Comment: Based on experience gained by the STATE OF COLORADO in this regard, additional competition in the provision of public safety communications equipment lowers the cost to purchase narrowband voice equipment. Many rural and small size public safety agencies have expressed their

displeasure for the cost of narrowband Project 25 trunked mobile and portable radio equipment, which can be up to five times the cost of their narrowband analog conventional mobile and portable radio equipment. Because Project 25 trunked technology has been chosen for interoperable communications in Colorado statewide, it is more likely that many of the rural and small size public safety agencies in Colorado which are not using the statewide Project 25 trunked system would do so if the cost of this equipment is lower. According to Safecom, which is a communications program of the U.S. Department of Homeland Security, a standards-based/shared system is the highest level of interoperability. Having these agencies on the shared system would be the best solution for interoperability statewide. Ergo, as an indirect result of increased competition, there would be an improvement in narrowband interoperability with lowered equipment costs.

Question: Conversely, what impact does the current state of competition in the provision of public safety communications equipment and devices have on interoperability?

Comment: Based on experience gained by the STATE OF COLORADO in this regard, the current state of competition in the provision of public safety communications equipment and devices has a negative impact on interoperability. We are fortunate that the Federal Government has funded many grant programs available during the past eight years which allowed the deployment of equipment and number of agencies participating on the shared Colorado statewide Project 25 trunked radio system to be where it is today. One point of emphasis is that many of the rural and small size agencies using the system today are only able to do so because of the grant programs funding their portable and mobile radio equipment. Their routine budgets simply could not have accommodated the cost of the equipment necessary for the level of interoperability that these agencies have today using the shared system. Moving forward, as this equipment ages and becomes due for routine replacement in the next 6-15 years, it is the hope that increased competition will have lowered the cost of this equipment to the point where these agencies can fund the routine replacement more easily using internal budgets rather than relying upon grant programs.

Question: Assuming additional competition would benefit public safety interoperability, what actions could the Commission take to improve competition in the provision of public safety communications equipment?

Comment: The STATE OF COLORADO would recommend that the Commission engage the FCC type acceptance program to include additional technical requirements and restrictions to include:

As a condition for FCC type acceptance, if a portable or mobile unit is capable of Project 25 common air interface voice transmissions, such voice transmissions shall only be in the Project 25 standard

clear (unencrypted) or Project 25 standard encrypted modes, as defined by the current Project 25 Statement of Requirements (SoR). Any other non-Project 25 common air interface voice mode capabilities shall preclude FCC type acceptance.

As a condition for FCC type acceptance, if a portable or mobile unit is capable of Project 25 common air interface voice transmissions, and if such portable or mobile unit will be marketed as a Project 25 radio, the unit shall pass all Project 25 Compliance Assessment Program Summary Test Report (STR) test cases for the appropriate features and the results be published on the Responder Knowledge Base (http://www.rkb.us) web site.

As a condition for FCC type acceptance, if a portable or mobile unit is capable of Project 25 common air interface voice transmissions, and if such portable or mobile unit will be marketed as a Project 25 radio, the unit shall pass all Project 25 Compliance Assessment Program Supplierââ?¬â?¢s Declaration of Compliance (SDoC) for the appropriate features and the SDoC be published on the Responder Knowledge Base (http://www.rkb.us) web site.

Question: What are the limitations of Project 25 in promoting narrowband public safety communications interoperability?

Comment: The STATE OF COLORADO does not believe that there are any limitations of Project 25 in promoting narrowband inter-agency public safety communications interoperability. The Project 25 standards promote interoperable digital voice communications in the unencrypted mode using conventional and trunked technologies. The Project 25 standards are, however, slow to develop and some features which promote a higher level of interoperability, such as those offered in scope two of the Project 25 trunked inter-subsystem interface (ISSI), will not be available from manufacturers until these standards are complete. This imposes somewhat of a barrier upon narrowband inter-agency public safety communications interoperability until those standards are complete, however, interoperability can still be achieved using existing gateway technologies, good engineering and end-user training.

The STATE OF COLORADO believes that the Project 25 standards do contain certain feature or function ambiguities and basic feature capabilities (e.g. voice transmission) which do not promote communications equipment interoperability between different manufacturers.

Question: What actions, if any, should the Commission take to rectify these limitations?

Comment: We would be grateful if the Commission could determine an effective way to encourage

the Project 25 standards process to be as efficient as some of the cellular standards processes (e.g. 3GPP). The STATE OF COLORADO also believes that if the Commission took a more active role in the Project 25 standards process and included Project 25 Compliance Assessment Program prerequisites to the FCC certification process, some of these issues could be handled more efficiently. For example, for features or functions that manufacturers identify as being ambiguous in the Project 25 Standards during the Project 25 Compliance Assessment Program testing, the Commission could implement a process to disambiguate the feature or function and require that such feature or function is better defined in the standards before further FCC certifications could be made. This would have an adverse effect of delaying a device going to market, however, this is beneficial to public safety because it will improve communications equipment interoperability for the end-users of the equipment and help to keep equipment which is not interoperable or contains feature/function ambiguities off of the streets. This will also encourage those who participate in the Project 25 standards process to work together and define clear, unambiguous features and functions before standards are published. And as we had mentioned in an comment earlier in this document, we would recommend that, as a condition for FCC type acceptance, if a portable or mobile unit is capable of Project 25 common air interface voice transmissions, such voice transmissions shall only be in the Project 25 standard clear (unencrypted) or Project 25 standard encrypted modes, as defined by the current Project 25 Statement of Requirements (SoR). Any other non-Project 25 common air interface voice mode capabilities shall preclude FCC type acceptance.

Question: Could open standards for public safety equipment increase competition?

Comment: If, by ââ?¬Ë?open standardsââ?¬â?¢, the Commission means ââ?¬Ë?open sourceââ?¬â?¢ as Linux operating system is to the personal computing industry, the STATE OF COLORADO does not believe that such a philosophy would be embraced by the public safety community. While the current Project 25 standards process is not as efficient as it could be, there is still one, single Project 25 standard for all manufacturers to work from. Using the Linux operating system analogy, there are many distributions of such an operating system, yet all facets of the operating system are not interoperable between these distributions. At the core, they still provide an operating system for a personal computing user and some software is interoperable, but not all. If this happened in the radio industry, we believe that this would be taking a step backwards away from interoperability. We feel that a more important concept in regards to the Project 25 standards is accessibility, and that all manufacturers and users should be able to access these standards at no cost and without limitations.

Question: What actions could the Commission take to facilitate openness?

Comment: We feel that the Commission should work with Telecommunications Industry Association (TIA) and the Electronic Industries Alliance (EIA) to encourage these entities to allow manufacturers and users of Project 25 equipment to have unrestricted access to the Project 25 standards documents at no cost.